



# **Alpha Performance R35 GT-R** **Big Bore Billet Throttle Bodies** **Setup Procedure**

(Insert Pic Of Throttle Bodies)

## INDEX:

1. Introduction
2. Disassembly (Factory Throttle Bodies)
3. Billet Throttle Assembly
4. Tuning

## **Introduction:**

The goal of Alpha Performance is to provide the highest quality, best performing products available. By utilizing research and development, and rigorous testing programs Alpha Performance will never compromise the quality or performance of our products. In addition, Alpha Performance will only provide the finest customer service offering only parts and advice that are in the best interests of the customer. Alpha Performance was built on a foundation of integrity. This is who we are; this is what you can count on.

A vehicle modified by the use of performance parts may not meet the legal requirements for use on public roads. Federal and state laws prohibit the removal, modification, or rendering inoperative of any part or element of design affecting emissions or safety on motor vehicles used for transporting persons or property on public streets or highways. Use or installation of performance parts may adversely affect the drivability and reliability of your vehicle, and may also affect or eliminate your insurance coverage, factory warranty, and/or new OEM part warranty. Performance parts are sold as-is without any warranty of any type. There is no warranty stated or implied due to the stresses placed on your vehicle by performance parts and our inability to monitor their use, tuning, or modification.

These instructions are provided as a guide only as there are many variables that cannot be accounted for concerning your particular vehicle, including but not limited to model year differences, model differences, the presence of non-OEM parts, and modifications that may already be or were previously installed. A basic knowledge of automotive parts and systems is helpful but a better understanding of the parts and systems on your particular vehicle may be required.

If you have any questions or issues at any time during the installation of your Alpha Performance product(s) please call us for technical assistance. The Alpha Performance tech line can be reached during business hours at 847-709-0530 for Alpha Performance products only.

## **Disassembly (Factory Throttle Bodies)**

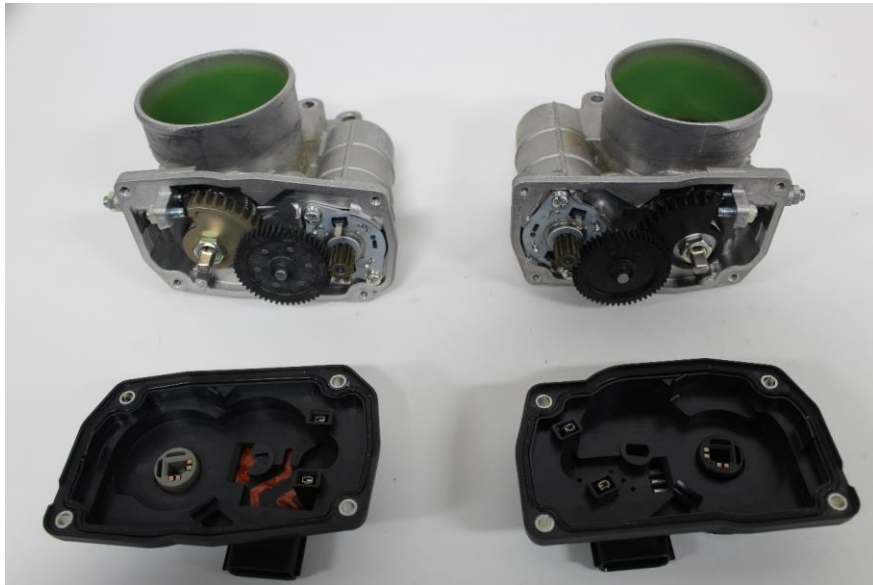
- 1) Remove the Factory throttle bodies from the intake manifold and place on a clean workspace.



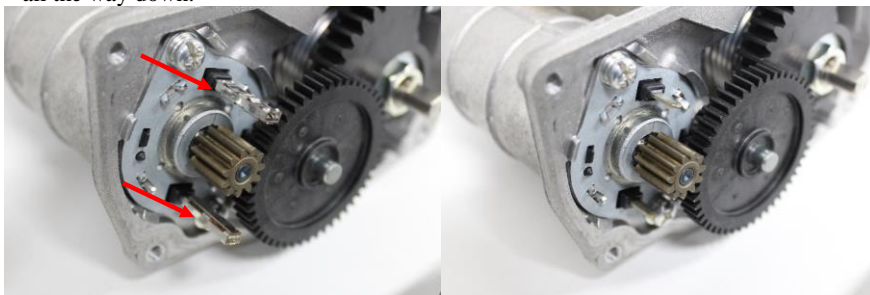
- 2) Remove the 4 screws per throttle body which secure the motor drive covers. EDIT?  
**Note:** T20 Security Torx



3) Remove the covers.



4) **Note:** When removing the covers, it's possible for the electrical connector to pull out from the cover and stay attached to the drive motor. Don't worry, just remove the connector from motor carefully, and reinsert into the cover with light pressure to seat it all the way down.





- 5) Remove the intermediate gear. Set to the side.



- 6) Remove the two screws securing the Drive motor. Remove the motor.  
Note: Use a small flat edge screw driver to pry the motor away from the housing. Working a small amount at a time and alternating sides. Do not bend the casing of the motor.



- 7) Remove the 12mm nut retaining the throttle shaft gear. Set to the side.



- 8) Remove the throttle shaft gear. Pay close attention when removing. This gear is under spring tension. Note how the tension is applied. Remove the spring underneath and set both to the side.



- 9) Remove the throttle stop cam. Pay close attention when removing. This stop cam is under spring tension. Note how the tension is applied. Remove the spring underneath and set both to the side.



## **Billet Throttle Assembly**

**Note: During assembly, make sure the OEM internal components are installed in the correct side they are removed. They cannot be mixed and matched between the throttle bodies.**

**10)** Locate the matching Alpha billet throttle body housing. Lay the OEM and the billet housings side by side to make sure you are working with the correct side.

**11)** Start by inserting the lower spring and throttle stop cam into the Alpha billet throttle body in the same fashion that it was removed from the factory throttle body.

**Note: When the spring and cam assembly are placed into the throttle body housing, rotate the cam about 180 degrees in order to tension the spring and depress the cam into the housing.**

**Commented [LC1]:** Add note to make sure the OEM components are only installed in the correct side they were removed, matching up the throttle body side to side. They cannot be switched type of thing.





12) Check the rotational position of the throttle shaft. The “flat” of the shaft where the throttle plate secures to, must be facing outward. Outward can be determined by orienting the throttle body in a position that the “ALPHA” engraving on the top of the throttle body can be read.



13) Install the throttle shaft gear and spring. Note the following pictures for orientation and position of the spring. The spring must sit in the detents shown in the pictures with the arrows.



Commented [LC2]: Add note to make sure the spring sits in the detent so the cam is under tension when installed.





14) Install the drive motor using the two screws provided.

**Note: Do not reuse the OEM screws as they will bottom out in the throttle body.**

Commented [LC3]: Do not reuse the OEM screws as they will bottom out in the throttle body.

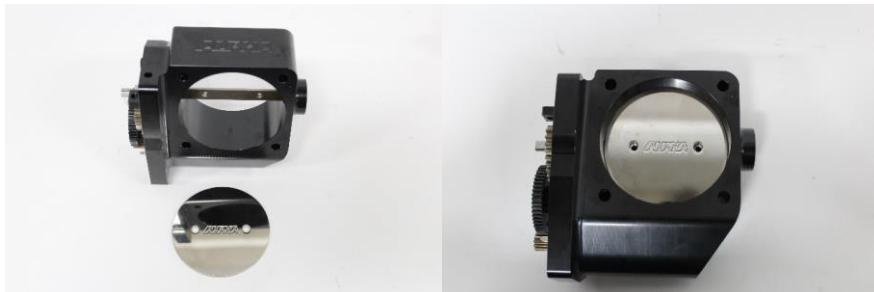
Commented [M4R3]:



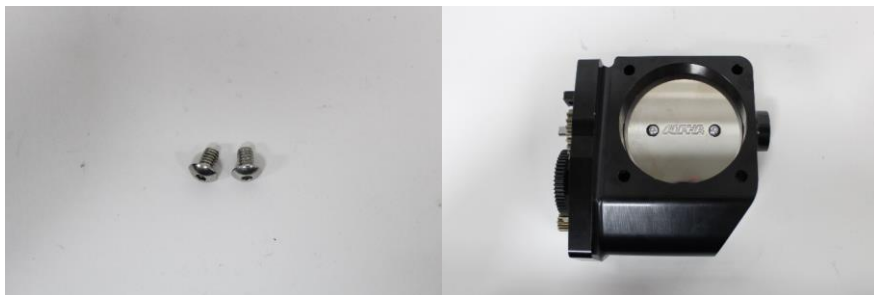
15) Install the intermediate gear.



16) Insert the throttle plate into the throttle body housing. Make sure the throttle plate and housing are both facing a direction in which "ALPHA" can be read.



**17)** Apply red thread locker (Red Loctite) to the threads of the throttle plate screws. Install loosely.



**18)** While holding the throttle plate closed by hand, adjust the position of the plate until the least amount of light can be seen between the plate and the housing. This is to ensure you have the best seal. While still applying pressure to hold the plate closed, tighten the screws a little at a time alternating between the screws until fully tightened.

**Commented [LC5]:** Fully tighten little by little until the throttle body plate is in the desired position.



**19)** Install the smaller set screw into the location shown. This set screw is used to set fully closed position of the throttle plate.



20) When closing the throttle plate by hand, you may notice that it “sticks” closed. To set the adjustment of this set screw, you will thread it in clockwise just until you can close the throttle by hand without it sticking. You want the throttle plate to seal as much as possible without it sticking closed. Once a position has been determined, hold the adjustment of the screw steady and then tighten the locking nut.



21) Now install the resting position set screw. This screw sets the resting throttle plate position. **Important: The final position of this screw must be set by your tuner.** To get a baseline, turn the screw in until it touches the stop cam or you feel the throttle plate just start to move from fully closed. Then Turn the screw 2 full revolutions clock-wise. Lock the screw down with the lock nut.





22) Reinstall the motor drive cover. Tighten the 4 screws securing the cover.



23) Install the Alpha endcap. Use green sleeve retaining compound on the mating edge of the endcap. Align and drive into place with a plastic or soft mallet.

Commented [LC6]: Green Sleeve retaining compound



24) Repeat step 10-22 for the other side throttle body.

### **Tuning:**

25) Once both of the throttle bodies are completed and installed onto the vehicle, the resting position needs to be calibrated by your tuner.

**26)** Please contact an Alpha sales representative for your tuning/engine calibration needs.

**27)** Enjoy!